PROJECT REPORT

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INTRODUCTION

THIS PROJECT IS A PYTHON BASED COUNTDOWN TIMER APPLICATION WITH GUI BUILT SYSTEM USING TKINTER WHICH ALLOWS USERS TO SET TASKS AND RUN A COUNTDOWN VISUALLY

PROBLEM STATEMENT

BUILD A COUNTDOWN TIMER THAT HELPS USERS TO PERFORM TASKS WITHIN THEIR TIME LIMIT HELPING THEM TO MANAGE TIME WITH PRODUCTIVITY

FUNCTIONAL REQUIREMENTS

- USERS CAN ENTER THEIR TASK NAME
- USERS CAN ENTER COUNTDOWN TIME
- TIMER DISPLAYS REMAINING TIME
- ALERT SHOWN WHEN TIMER ENDS

NON FUNCTIONAL REQUIREMENTS

- SIMPLE AND CLEAN INTERFACE
- RESPONDS WITHOUT FREEZING
- CROSS PLATFORM COMPATIBILITY

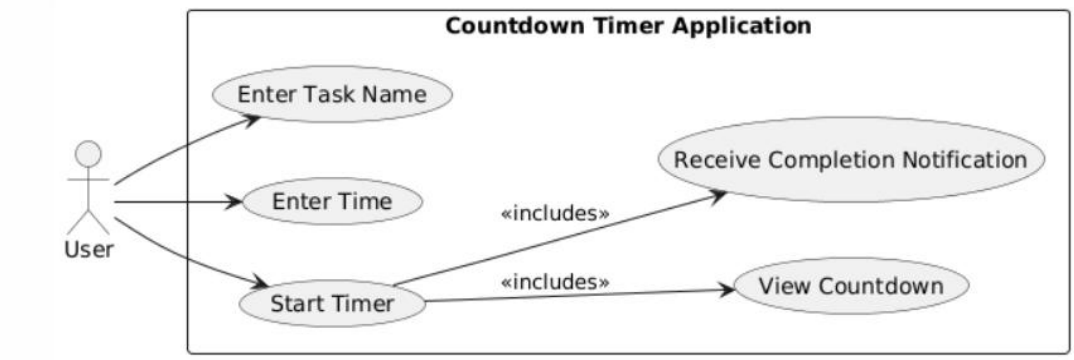
SYSTEM ARCHITECTURE

A 3 MODULE ARCHITECTURE

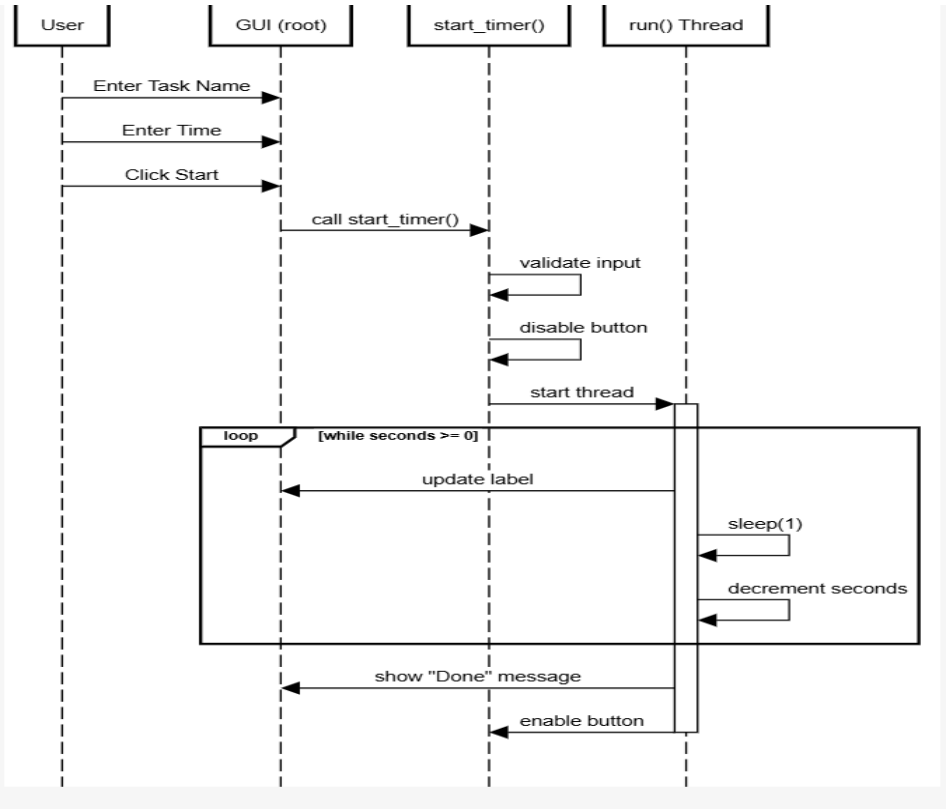
- USER MODULE
- INPUT PROCESSING MODULE
- TIMER MODULE WITH THREADING

DESIGN DIAGRAMS

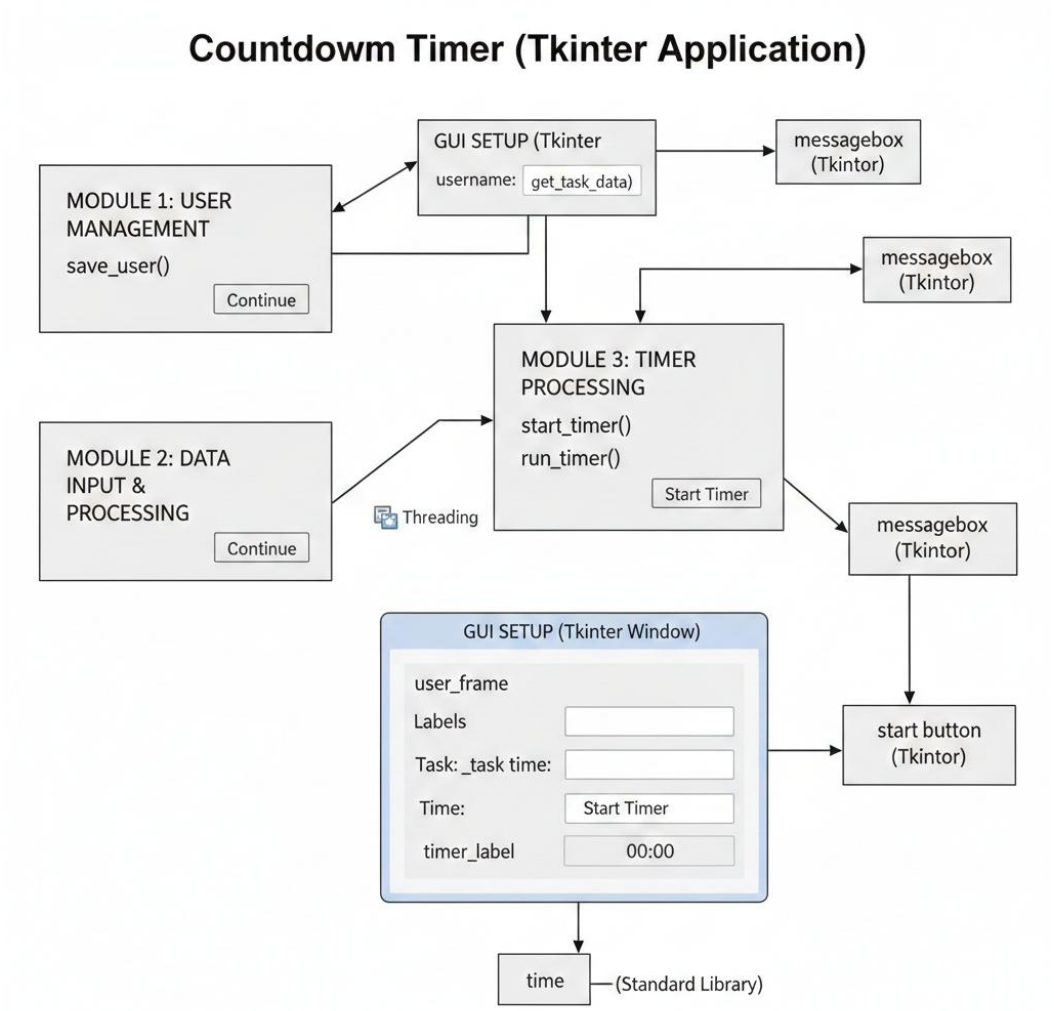
- USE CASE DIAGRAM



- SEQUENCE DIAGRAM



- COMPONENT DIAGRAM



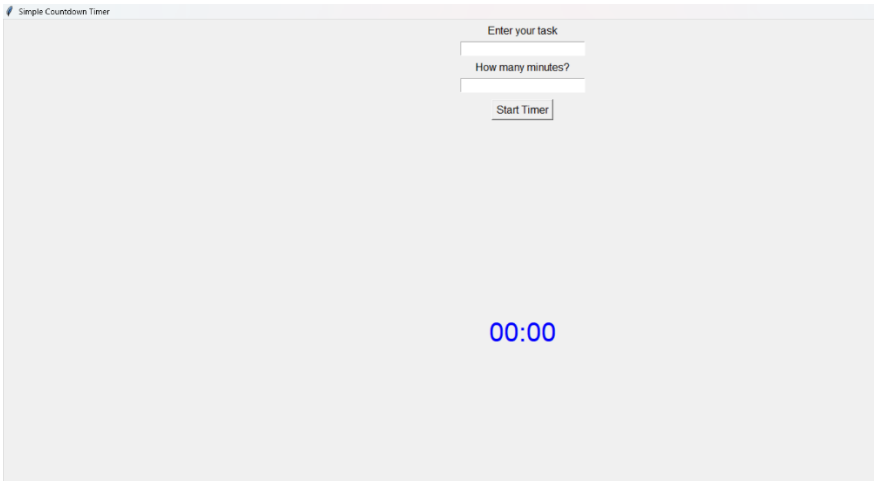
Design Decisions & Rationale

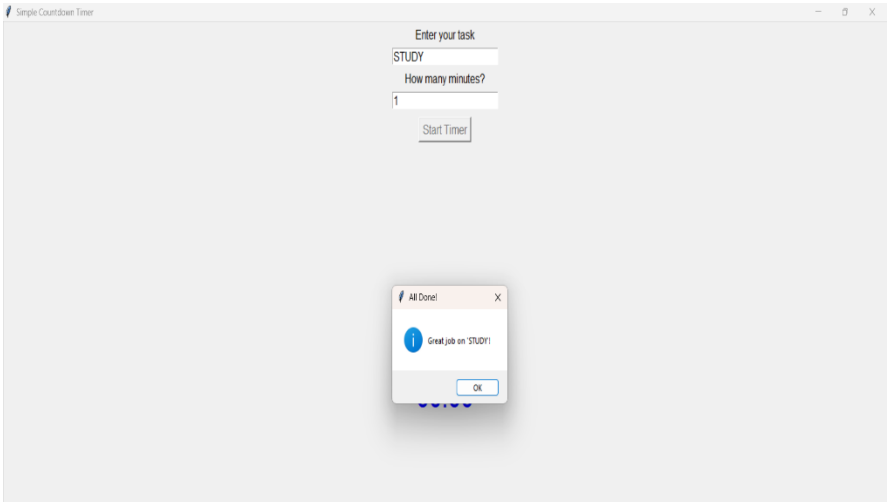
- Used Tkinter due to built-in availability.
- Threading prevents GUI freezing.
- Simple modular approach ensures scalability

IMPLEMENTATION DETAILS

- Python
- Tkinter
- Multithreading
- Functions for each module.

SCREENSHOTS/RESULTS





TESTING APPROACH

- Input validation tests.
- Timer accuracy tests.
- GUI response tests.

CHALLENGES FACED

- Making GUI responsive
- Managing user input

LEARNINGS AND KEY TAKEAWAYS

- Tkinter GUI design
- Multithreading
- Modular programming structure

FUTURE ENHANCEMENTS

- Pause and Resume functionality.
- Saving task history.
- Dark mode theme.